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SECOND BI-MONTHLY PROGRESS REPORT
UNIVERSITY OF ALASKA
ERTS PROJECT NO. 110-3
November 30, 1972

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- A. TITLE OF INVESTIGATION: Identification, definition and mapping of terrestrial ecosystems in interior Alaska
- B. PRINCIPAL INVESTIGATOR: J. H. Anderson/UN592
- C. PROBLEMS IMPEDING INVESTIGATION: The color additive viewer and the digital color display unit were not yet ready for use. However, it is unlikely that this seriously impeded the investigation because of the amount of simple visual examination of the black and white prints which had to be done during the reporting period.

Many of the scenes have so much cloud cover that they may be of little use. Several of the photographic prints are too dense for examination.

PROGRESS REPORT:

1. Accomplishments during reporting period:

- a. A reconstituted color infrared image of the western Seward Peninsula was used for identification of vegetation types and related phenomena. A report dealing with this study was written.
- b. Six scenes in interior Alaska were selected for intensive study:
- i. NASA ERTS E-1029-20381-4, -5, -6 and -7. August 21. This scene has less than five percent cloud cover and includes the Yukon Flats, Yukon River, Yukon-Tanana Upland, the Eagle Summit sub-arctic alpine tundra research area and parts of the Steese Highway.
 - ii. NASA ERTS E-1030-20435-4, -5, -6 and -7. August 22. This scene provides similar coverage to the above and will be studied in conjunction with it. Emphasis will be on the Eagle Summit research area.
 - iii. NASA ERTS E-1033-21011-4, -5, -6 and -7. August 25. Only about 30 percent of this scene is cloud-free, but the cloud-free area includes the Bonanza Creek Experimental Forest test area and other relatively accessible terrain, including cultivated areas, immediately west of Fairbanks. To date it is the best scene of this major test area.

N73-14331

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(E72-10343) IDENTIFICATION, DEFINITION
AND MAPPING OF TERRESTRIAL ECOSYSTEMS IN
INTERIOR ALASKA Bimonthly Progress
Report J.H. Anderson (Alaska Univ.,
College.) 30 Nov. 1972 5 p CSCI 08F

- iv. NASA ERTS E-1102-20443-4, -5, -6 and -7.
November 2. This scene is entirely cloud-free and includes the Eagle Summit research area.
- v. NASA ERTS E-1103-20502-4, -5, -6 and -7.
November 3. This scene is cloud-free and includes both the Bonanza Creek and Eagle Summit test areas. It may be useful for the study of snow distribution and the appearance of forest and shrub vegetation through a snow cover.
- vi. NASA ERTS E-1105-21015-4, -5, -6 and -7.
November 5. This scene is cloud free and includes the Bonanza Creek Experimental Forest. Other interesting features are large segments of the Yukon and Tanana Rivers and the Minto Flats.

- c. Some study of aerial photography
- d. Request for NASA aircraft support in spring, 1973 submitted.

2. Plans for next reporting period:

- a. Further cataloging and study of aerial photography, particularly with a newly arrived stereoscope.
- b. Visual examination of the scenes listed above, in black and white and reconstituted color infrared. Analysis with the color additive viewer when this is available.
- c. An order for imagery obtained prior to August 1 and for color transparencies of the images listed above will be submitted.

E. SIGNIFICANT RESULTS:

A reconstituted color infrared image covering the western Seward Peninsula was used for identifying vegetation types by simple visual examination. The image is NASA ERTS E-1009-22095, taken approximately 1120 hours on August 1, 1972.

Seven major colors were identified. Four of these were matched with four units on existing vegetation maps: Bright red - shrub thicket; light gray-red - upland tundra; medium gray-red - coastal wet tundra; gray - alpine barrens. In the bright red color, two phases, violet and orange, were recognized and tentatively ascribed to differences in species composition in the shrub thicket type. The three colors which had no map unit equivalents were interpreted as follows: Pink - grassland tundra; dark gray-red - burn scars; light orange-red - senescent vegetation.

It is concluded that the image provides a considerable amount

of information regarding the distribution of vegetation types, even at so simple a level of analysis. It is also concluded that sequential imagery of this type could provide useful information on vegetation fires and phenologic events.

A paper dealing with this work is available from the Institute of Arctic Biology, University of Alaska.

- F. PUBLICATIONS: None
- G. RECOMMENDATIONS: None
- H. CHANGES IN STANDING ORDER FORMS: None
- I. ERTS IMAGE DESCRIPTORS FORMS: One is submitted.
- J. DATA REQUEST FORMS: None

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PRINCIPAL INVESTIGATOR: J. H. Anderson/UN 592

TITLE OF INVESTIGATION: Identification, definition and mapping of
terrestrial ecosystems in interior Alaska

DISCIPLINE: Environment

SUBDISCIPLINE: Other: Vegetation analysis, mapping and phenology

SUMMARY OF SIGNIFICANT RESULTS:

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ERTS IMAGE DESCRIPTOR FORM

(See Instructions on Back)

DATE November 30, 1972

PRINCIPAL INVESTIGATOR J. H. Anderson

GSFC UN592

ORGANIZATION University of Alaska

NDPF USE ONLY

D _____
N _____
ID _____

PRODUCT ID (INCLUDE BAND AND PRODUCT)	FREQUENTLY USED DESCRIPTORS*			* DESCRIPTORS
XXXXXXXXXX 1029-20381 M 1030-20435 M 1033-21011 M 1102-20443 M 1103-20502 M 1105-21015 M				Aerial imagery used Braided stream Brush Conifer Deciduous Forest Ground truth used Hardwood forest Highway Lake Mature vegetation Meander Muskeg River Timberline Tundra Urban area Vegetation * These apply to all scenes listed.

*FOR DESCRIPTORS WHICH WILL OCCUR FREQUENTLY, WRITE THE DESCRIPTOR TERMS IN THESE COLUMN HEADING SPACES NOW AND USE A CHECK (✓) MARK IN THE APPROPRIATE PRODUCT ID LINES. (FOR OTHER DESCRIPTORS, WRITE THE TERM UNDER THE DESCRIPTORS COLUMN).

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